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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,168	01/04/2005	Young-Sik Huh	0002.1001	9235

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EXAMINER	
TORRENTE, RICHARD T	

ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,168	HUH ET AL.	
	Examiner	Art Unit	
	RICHARD TORRENTE	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/10/08, 3/21/05, 1/4/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7, 8, 23 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 8 recites the limitation "the decoded current frame" in lines 9 and 15. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5, 11-13, 15, 21, 30 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (US 2003/0081133 A1).

Regarding claim 1, Lee discloses a system to estimate a color temperature (brightness) of a compressed video image and change the color temperature of the compressed video image (see abstract), the system comprising: a color temperature estimation unit (see 112 of fig. 1) to receive a video image compressed (see 102 of fig. 1) using a block-based discrete cosine transformation (DCT) (see 104 of fig. 1; see 400 of fig. 4), generates a discrete cosine (DC) video image (see 408 of fig. 4) corresponding to the compressed video image, and estimates the color temperature of the compressed video image using the DC video image (see 410 and 412 of fig. 4); a decoder (see 102 of fig. 1) to decode the compressed video image to generate an original video image (see output of 102 to 106 in fig. 1); and a color temperature change unit (see 106 of fig. 1) to determine the estimated color temperature of the compressed video image, and changes the color temperature of the decoded original video image in accordance with the application color temperature and a color temperature preferred by a user (see 418-426 of fig. 4).

Regarding claims 2, 12 and 30, Lee further discloses wherein the color temperature estimation unit comprises: a DC video image extraction section to extract DC coefficients of each of a plurality of DCT blocks from the compressed video image (see 408 of fig. 4), each of the DC coefficients representing an average value of pixel values of each of the respective DCT blocks of the compressed video image (e.g. see 410 of fig. 4), defines the DC coefficients as average pixel values (see 410 of fig. 4), and generates a DC video image composed of the average pixel values (see 416 of fig.

4); and a color temperature estimation section to estimate a color temperature of the entire compressed video image from the color temperature of the DC video image (see 424 and 426 of fig. 4).

Regarding claims 3 and 13, Lee further discloses wherein the DC coefficients of each of the DCT blocks are obtained by multiplying DCT coefficients with respect to coordinates (0,0) of each of the DCT blocks by a predetermined constant in response to the compressed video image being a still video or an internally coded moving video image (see P [0031]).

Regarding claims 5, 15, 21 and 31, Lee further discloses wherein the color temperature change unit comprises: an application color temperature determination section (e.g. see 418 of fig. 4) to determine the estimated color temperature of the compressed video image; and a color temperature change section (e.g. see 424 of fig. 4) to receives the color temperature preferred by the user and changes the color temperature of the decoded video image in accordance with the application color temperature and the color temperature preferred by the user (see 424 and 426 of fig. 4).

Regarding claim 11, the claim(s) recite analogous limitations to claim 1, and is/are therefore rejected on the same premise.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 4, 6-9, 14, 16-19, 22, 23, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 2003/0081133 A1) and in view of Wee et al. (US 6,104,441).

Regarding claims 4 and 14, Lee discloses wherein the DC coefficients of each of the DCT blocks of a current frame are extracted (see 408 of fig. 4).

Lee does not discloses the particular wherein the DC coefficients of each of the DCT blocks of a current frame are calculated as a sum of terms corresponding to four blocks of a previous frame in response to the compressed video image being an interframe-coded moving video image; and wherein each of the terms is determined as a product of a ratio of an overlapping area of a DCT block whose DC coefficients of the current frame are to be extracted and DCT blocks of a previous frame to the area of the DCT blocks of the previous frame and DC coefficients of each DCT block of the previous frame.

Wee, in the same field of endeavor, discloses a interframe-coding method wherein the DC coefficients of each of the DCT blocks of a current frame (see 325 and 363 of fig. 10) are calculated as a sum of terms corresponding to four blocks of a

previous frame in response to the compressed video image being an interframe-coded moving video image (see 329-327 of fig. 10; see column 13, lines 22-27); and wherein each of the terms is determined as a product of a ratio of an overlapping area of a DCT block (precomputed matrices) whose DC coefficients of the current frame are to be extracted (see 371 and 369 of fig. 10) and DCT blocks of a previous frame to the area of the DCT blocks of the previous frame and DC coefficients of each DCT block of the previous frame (see 371 and 327 of fig. 10).

Given the teachings as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Wee teachings of interframe-coding into Lee DC coefficient extraction for the benefit of upgrading the system to include interframe-coding. Interframe-coding reduces bandwidth by not transmitting repeated frames.

Regarding claims 6, 7, 8, 16, 17 and 18, Lee discloses extracting the DC coefficient (see 408 of fig. 4) and comparing a first color temperature difference (see "edge region" in 416 of fig. 4) with a first predetermined critical value (e.g. see "critical value" in 418 of fig. 4); and determining the application color temperature of the current frame by adding a correction function to the application color temperature (e.g. see 426 of fig. 4) in response to the first color temperature difference being smaller than the first critical value (e.g. see "yes" in 418 of fig. 4); calculates a second color temperature difference between the estimated color temperature of the DC video image of the current frame and the estimated color temperature of the decoded current frame (see

“center region" in 416 of fig. 4), and compares the second color temperature difference with a predetermined second critical value in response to the first color temperature difference being larger than the first critical value (see 420 of fig. 4); and determines the estimated color temperature of the DC video image of the current frame as the application color temperature of the current frame in response to the second color temperature difference being less than the second critical value (e.g. see 424 of fig. 4); and determines the estimated color temperature of the DC video image of the decoded current frame as the application color temperature of the current frame in response to the second color temperature difference being larger than the second critical value (e.g. see 426 of fig. 4).

Lee does not disclose the details of extracting the DC coefficient with regards to a frame being interframe and adding a correction function to the application color temperature of the previous frame.

Wee, in the same field of endeavor, discloses extracting a DC coefficient of an interframe coded image wherein the DC video image of a current frame (see 325 of fig. 10) and an estimated color temperature of the DC video image of a previous frame (see 329-335 of fig. 10) in response to the compressed video image being interframe coded (e.g. see P frame in 302 of fig. 8); and determining the application color temperature of the current frame (see 373 of fig. 10) by adding a correction function to the application color temperature of the previous frame (see 371 and 327 of fig. 10).

Given the teachings as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Wee teachings of

interframe-coding into Lee DC coefficient extraction for the benefit of upgrading the system to include interframe-coding. Interframe-coding reduces bandwidth by not transmitting repeated frames.

Regarding claims 9, 19, 22, 23, 26 and 27, Lee further discloses wherein the first color temperature difference are obtained by multiplying inverse numbers (see "ratio" in 420 of fig. 4) of each color temperature by a predetermined coefficient (see "brightness value" in 420 of fig. 4).

8. Claims 10, 20, 24, 25, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 2003/0081133 A1) and Wee et al. (US 6,104,441) as applied to claim 6 above, and further in view of Takahashi (US 2002/0044685 A1).

Regarding claims 10, 20, 24, 25, 28 and 29, the combination of Lee and Wee does not disclose wherein the first and second critical values are approximately 200.degree. K.

Takahashi, in the same field of endeavor, discloses a method for color temperature computation (see 24 of fig. 1) wherein the first and second critical values are approximately 200.degree. K (e.g. see fig. 2).

Given the teachings as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Takahashi teachings of color temperature calculation into Lee and Wee DC extraction systems for the benefit of

improving the correction of white balance and intensity of an image by having a numerical gauge as a reference.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD TORRENTE whose telephone number is (571) 270-3702. The examiner can normally be reached on M-F: 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Young Lee/
Primary Examiner, Art Unit 2621

RT
/Richard Torrente/
Examiner, Art Unit 2621